



# Increased risk of breast cancer in individuals carrying the *TNRC9* rs3803662 C>T polymorphism: a meta-analysis of case-control studies

Q. Wang<sup>1\*</sup>, N.Y. Wang<sup>1</sup>, X.M. Cao<sup>1</sup>, X. Sun<sup>1</sup>, D. Shen<sup>1</sup>, M. Yuan<sup>1</sup> and J.F. Chen<sup>2\*\*</sup>

<sup>1</sup>Department of Oncology, Affiliated Jiangyin Hospital of Southeast University Medical College, Jiangyin, Jiangsu, China

<sup>2</sup>Department of Oncology, Nanjing First Hospital, Nanjing Medical University, Nanjing, Jiangsu, China

\*These authors contributed equally to this study.

Corresponding authors: Q. Wang / J.F. Chen

E-mail: qiongwangdoc@163.com / chenjinfeicc@126.com

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**ABSTRACT.** Currently, the relationship between the trinucleotide repeat containing 9 (*TNRC9*) rs3803662 C>T polymorphism and risk of breast cancer (BC) is uncertain. Here, we attempted to obtain a more accurate assessment of this association by conducting a meta-analysis of all eligible case-control investigations, comprising 44,820 cases and 58,316 controls. A comprehensive search was performed to identify all suitable studies involving the *TNRC9* rs3803662 polymorphism and BC risk. Pooled odds ratios (ORs) and 95% confidence intervals (95% CIs)

were estimated using fixed- or random-effect models. Heterogeneity, publication bias, and sensitivity analyses were also carried out. We found that the variant T allele of rs3803662 C>T greatly increases BC risk (CT vs CC: OR = 1.14, 95%CI = 1.07-1.22, P < 0.001; TT vs CC: OR = 1.38, 95%CI = 1.25-1.53, P < 0.001; CT/TT vs CC: OR = 1.19, 95%CI = 1.11-1.28, P < 0.001; TT vs CT/CC: OR = 1.28, 95%CI = 1.19-1.38, P < 0.001). Stratified analysis based on ethnicity also revealed a markedly increased risk in Asian and Caucasian populations. Moreover, studies with hospital-based control groups showed elevated risk under the four genetic models employed, as did those using population-based controls, except under heterozygote comparison. The *TNRC9* rs3803662 C>T polymorphism is greatly related to increased risk of BC, in both Asian and Caucasian populations.

**Key words:** Genetic polymorphism; *TNRC9*; rs3803662 C>T; Breast cancer; Meta-analysis